Institute for Materials Science

UNCLASSIFIED

Institute for Materials Science Lecture Series

Edwin L. Thomas
Dean of Engineering
Professor of Materials Science and NanoEngineering
Rice University - Houston, Texas

Indistinguishable from Magic?

(A Perspective on Some Aspects of Materials Research in the Next Decade)

Tuesday, March 22, 2016
10am - 11am
MSL Auditorium (TA-03 - Bldg 1698 - Room A103)

Addressing multifunctional materials: The mighty electron, the cool photon and the lowly phonon...how waves in periodic materials lead to interesting properties.

Problem Driven Research: Improving Sets of Properties

Creating the Magic: Synthetic MetaMaterials blur the distinction and bridge the regime in between engineered microstructured materials with their enhanced conventional properties and multicomponent structured devices that can display novel (and sometimes unexpected) functionality (amplification, filtering, sensing etc.). Such material systems open a whole new range of heretofore unimagined material system behaviors (e.g. cloaking, one way transmission etc).

Bio: Edwin L. "Ned" Thomas is the William and Stephanie Sick Dean of the George R. Brown School of Engineering. He is a member of the National Academy of Engineering and the American Academy of Arts and Sciences. He holds joint appointments in the Departments of Materials Science and NanoEngineering, Chemical and Biomolecular Engineering and Chemistry. He collaborates with scientists and engineers in the Smalley-Curl Institute for Nanoscale Science and Technology at Rice.

Thomas is a materials scientist and mechanical engineer and is passionate about promoting engineering leadership and student design competitions. His research is currently focused on using 2D and 3D lithography, direct-write and self-assembly techniques for creating metamaterials with unprecedented mechanical and thermal properties.

Thomas is the former head of the Department of Materials Science and Engineering at the Massachusetts Institute of Technology, a position he held from 2006 until his appointment at Rice in July 2011. He was named Morris Cohen Professor of Materials Science and Engineering in 1989 and is the founder and former director of the MIT Institute for Soldier Nanotechnology (2002-2006).

Before joining MIT, Thomas founded and served as co-director of the Institute for Interface Science and was head of the Department of Polymer Science and Engineering at the University of Massachusetts. He is a recipient of the 1991 High Polymer Physics Prize of the American Physical Society and the 1985 American Chemical Society Creative Polymer Chemist award. He was elected Inaugural Fellow of the Materials Society in 2008, Fellow of the American Association for the Advancement of Science in 2003 and Fellow of the American Physical Society in 1986. He wrote the undergraduate textbook, The Structure of Materials, and has coauthored more than 435 papers and holds 18 patents.

Thomas received a B.S. in mechanical engineering from the University of Massachusetts and his Ph.D. in materials science and engineering from Cornell University.

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Hosted by Alexandar Balatsky * Director of the Institute for Materials Science

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